

Publication Trends in *The Analysis of Verbal Behavior*: 1999–2008

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The Analysis of Verbal Behavior (TAVB) publishes experimental and theoretical papers relevant to a behavioral analysis of language. Normand, Fossa, and Poling (2000) reviewed the published studies in *TAVB* across several dimensions and found that despite the growth of the journal, most articles published in *TAVB* from 1982 to 1998 were nonexperimental. The current study extends this review by analyzing articles published in *TAVB* from 1999 through 2008. Results showed that 48% of the articles published between 1999 and 2008 were experimental (65% in the last 4 years), 93% of them used within-subject experimental designs, and most of them (54%) included children with developmental disabilities. This suggests an increased interest in the experimental analysis of verbal behavior with a focus on teaching language to individuals with disabilities.

Key words: verbal behavior, language research, B. F. Skinner (1957), *The Analysis of Verbal Behavior*, behavior analysis

The Analysis of Verbal Behavior (TAVB) was first published in 1982 as a newsletter (VB News) to keep the members of the Verbal Behavior Special Interest Group of the Association for Behavior Analysis International (ABAI) up to date on current developments in the area (Sundberg, 1997). It was not until 1985 that the newsletter became a peer-reviewed journal, with the purpose of publishing original papers relevant to a behavioral analysis of language. Since its inception, the journal has published a wide variety of conceptual, experimental, and applied articles relevant to Skinner's (1957) original work. Moreover, the number of behavior-analytic publications either citing Skinner or using the terminology related to specific verbal operants has increased considerably over the past few years (Dymond, O'Hara, Whelan, & O'Donovan, 2006; Sautter & LeBlanc, 2006). Although publications related to verbal behavior have appeared in a wide variety of journals, *TAVB* remains the only scholarly journal dedicated

solely to the theoretical and experimental analyses of verbal behavior.

As an attempt to assess the publication trends of *TAVB*, Normand, Poling, and Fossa (2000) reviewed the studies published in the journal between 1982 and 1998. Even though reviews of verbal behavior research had previously been published (Eshleman, 1991; Oah & Dickinson, 1989), none had specifically focused attention on *TAVB*. In their review, Normand et al. reported that only 27% of the articles published between 1982 and 1998 were experimental, with most papers being conceptual in nature. Of the experimental articles, most studies were conducted in laboratory settings with college students and were designed to assess the variables that control specific verbal operants. Normand et al. concluded that regardless of its major role as an outlet for verbal behavior research, the journal lacked empirical content.

Given the rising interest in verbal behavior research, a more updated analysis of articles published in *TAVB* seems warranted. The current study extends the review conducted by Normand et al. (2000) by examining the specific characteristics of articles published in *TAVB* from 1999 through 2008. Emphasis is placed on experimental articles. This information should not only help us to evaluate the journal's past contributions but also to plan for its future.

We thank the anonymous reviewers for their suggestions and Danielle LaFrance for her editorial assistance.

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METHOD

This review employed the same methodology as was used by Normand et al. (2000). All articles published in *TAVB* from 1999 to 2008 were analyzed according to the following dimensions: (a) number of pages per year, (b) article type, (c) field versus laboratory, (d) experimental design, (e) measurement of dependent variables, and (f) participants. The first two authors reviewed the data on these specific dimensions for all articles published in *TAVB* from 1999 to 2008. An agreement was defined as both observers selecting the same item for each of the six categories. Interobserver agreement was calculated per article by dividing the total number of agreements by agreements plus disagreements and multiplied by 100%. Mean agreement was 97% (range, 83% to 100%). Because the purpose of this study was to accurately identify the specific characteristics of articles published in *TAVB*, when a disagreement occurred, the two authors reviewed the article together and made a determination on which category should be selected.

Number of Pages per Year

The total number of pages in each journal was determined by using the page number printed on the last page of text.

Article Type

Articles were categorized as either experimental or nonexperimental. To be considered experimental, at least one independent variable in the study had to be manipulated and at least one dependent variable had to be measured. For example, Miguel, Petursdottir, and Carr (2005) evaluated the role of tact training (independent variable) in the development of intraverbal behavior (dependent variable) in typically developing children. Articles that did not include the manipulation of at least one independent variable and the measure of one or more dependent variables were categorized as nonexperimental.

Field versus Laboratory

Experimental articles were categorized as either field or laboratory studies. Field

studies were those conducted in the participants' natural environments (e.g., child's home or school). Laboratory studies were those conducted in places other than the participants' natural environments (e.g., university laboratory). Moreover, articles were classified as laboratory studies if any special environmental conditions were included as an attempt to control for extraneous variables. For instance, if a study was conducted in a secluded area of a participant's classroom or if an experimental apparatus was present, the research was considered to be a laboratory study.

Experimental Design

Experimental articles were categorized as using either a between-subjects design or a within-subject design. Within-subject designs were those in which participants were exposed to different values of the independent variable (or different independent variables) and data were analyzed by comparing the same person's performance across these variables. Between-subjects designs were those in which different participants were exposed to different experimental conditions or independent variables and data were analyzed by comparing the performance of these participants.

Dependent Variable

The dependent variable in each experimental article was categorized as either direct observation (e.g., on-site data collection or from a video recording), self-report, or mechanical measurement (e.g., computer software that collected data automatically).

Participants

Data were collected from each experimental study to determine whether the participants were reported to be (a) typically developing children, (b) typically developing adults, (c) children with developmental disabilities, or (d) adults with developmental disabilities. In their original review, Normand et al. (2000) reported no trends in participants' gender; therefore, this category was not included in the current analysis.

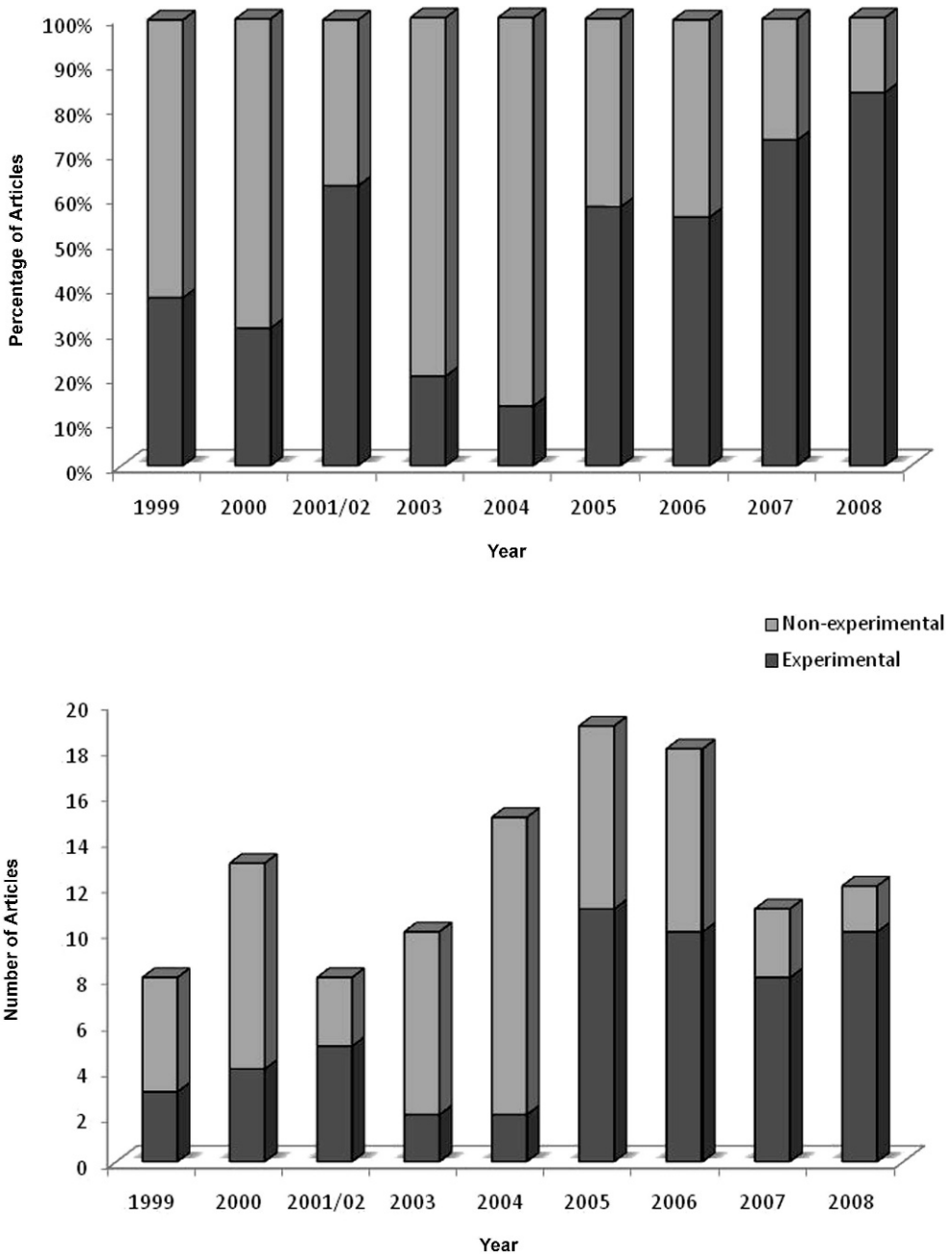


Figure 1. The percentage (top) and the number (bottom) of experimental and nonexperimental articles.

RESULTS

Number of pages per year. Unlike Normand et al. (2000) who reported an increasing trend, there were no observed increasing or decreasing trends in the number of pages.

The number of pages per year varied from 102 to 215 printed pages. Of note, only one issue of *TAVB* was published during the years 2001 and 2002.

Article type. Figure 1 depicts the percentage and the number of experimental and

nonexperimental articles published in *TAVB*. From 1999 through 2008, a total of 114 articles were published. Of these, 48% (55 articles) were experimental studies and 52% (59 articles) were nonexperimental. This shows an increase in the percentage of experimental studies from the 27% reported by Normand *et al.* (2000). The last four issues of *TAVB* presented substantially higher proportions of experimental over nonexperimental studies, with the highest number of experimental studies published in 2005 (11).

Field versus laboratory. Figure 2 shows the percentage and the number of the experimental studies that were conducted in field and laboratory settings. Between 1999 and 2008, the percentage of experimental studies conducted in laboratory settings was 62% (34 articles) and the percentage of studies conducted in field settings was 38% (21 articles). Of note, in the 2004 and 2007 issues, laboratory and field studies appeared equally as often. Of two experimental articles published in 2004, one was conducted in a laboratory setting and the other in a field setting. In 2007, eight experimental studies were published, four of which were conducted in the laboratory and the other four conducted in the field. In the 2005 issue, a higher percentage of studies (54%) were conducted in field settings, such as participants' homes or schools (e.g., Karmali, Greer, Nuzzolo-Gomez, Ross, & Rivera-Valdez, 2005).

Experimental design. Figure 3 shows the percentage and the number of experimental articles that used either within-subject or between-subjects designs. Within-subject designs were used more often than between-subjects designs. Between 1999 and 2008, 93% (51 articles) of the experimental articles used within-subject designs, and 7% (four articles) used between-subjects designs.

Dependent variable. Figure 4 depicts the percentage and the number of experimental articles that used either direct observation, mechanical measures, or self-reports. Direct observation was used in 80% (44) of the experimental studies. Examples include ongoing direct and manual collection of data during sessions or the collection of data from an audio or videotape recording of experimental sessions. Mechanical measurement was used in 18% (10) of the experimental articles. In Layng, Twyman, and Stikeleather

(2004), for example, a computer continuously recorded sound-to-letter correspondence. Self-report measures appeared in only one study (Shimamune & Jitsumori, 1999). Of note, in the issues published in 2000, 2003, and 2004, direct observation and mechanical measurement were used equally often.

Participants. Figure 5 shows the percentage and number of experimental articles that reported participants' characteristics. Children with developmental disabilities were used in 54% of the articles (30). Typically developing children and adults were reportedly used in 40% of studies (11 articles for each population). Adults with developmental disabilities were used in 11% of the studies (six articles). Of note, three studies reported using participants with different characteristics. Danforth (2001) reported using typically developing children and adults, Vignes (2007) reported using autistic and typically developing children, and Bloh (2008) reported using children and adults with disabilities. Note that 42% of the studies published in *TAVB* between 1999 and 2008 reported using individuals (children and adults) with autism as participants.

DISCUSSION

From 1999 through 2008, *TAVB* continued to publish experimental and theoretical papers relevant to a behavioral analysis of language. During its last 10 years, the journal published a total of 1,394 pages and 144 papers (not including editorials). An increasing trend in the number of experimental articles continued in the last decade, with the highest number of empirical papers published in the last 2 years (2007 and 2008). This empirical research continued to follow strictly the behavior-analytic tradition of using single-subject designs with direct observation as the primary means of data collection.

Although the number of laboratory studies continued to be more prevalent, in the 2005 issue, field studies (six) exceeded the number of laboratory studies (five), and in the 2007 issue, there were the same number of studies conducted in both of these settings (four studies in each). These field studies could be considered to be applied, because they were conducted with the purpose of testing

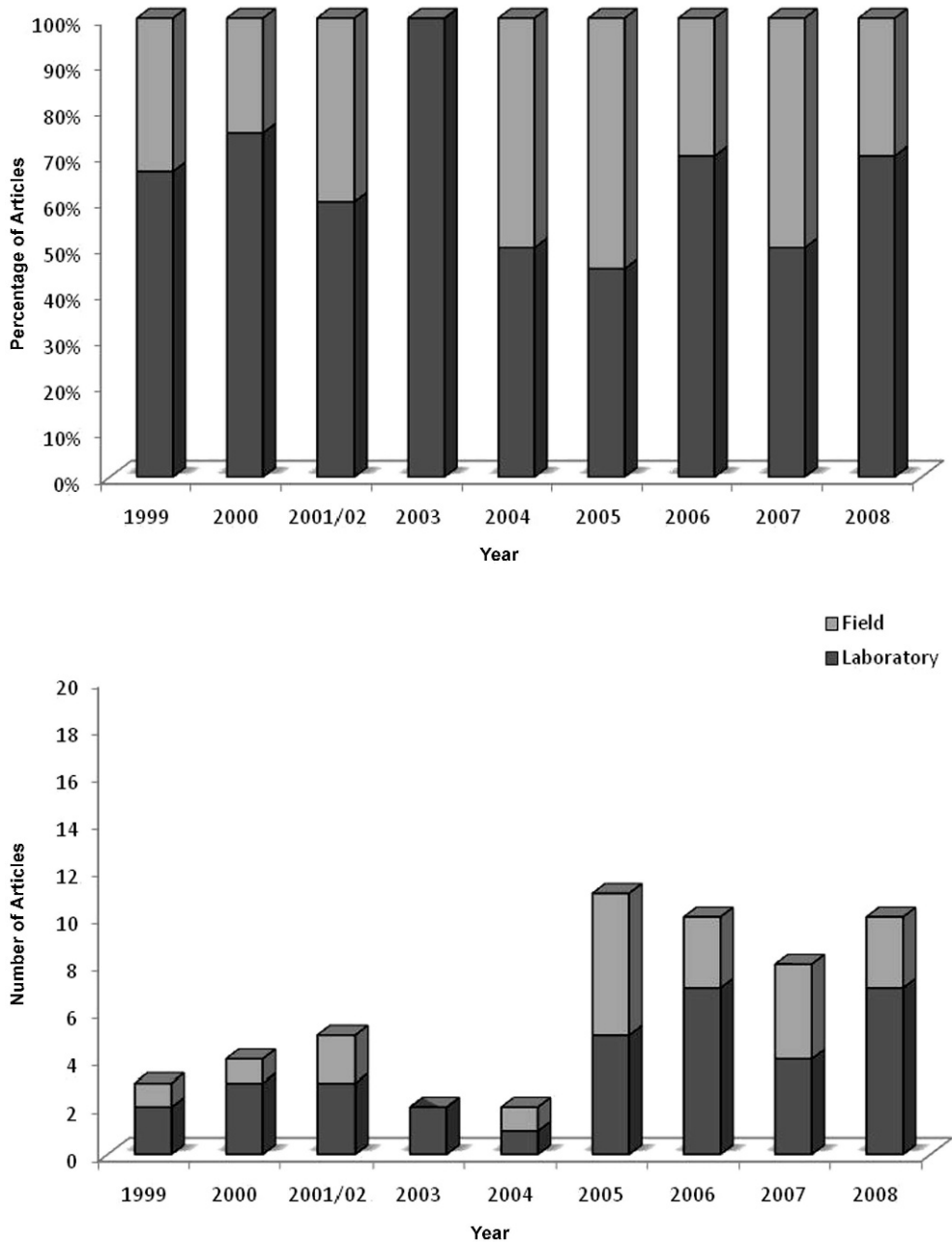


Figure 2. The percentage (top) and the number (bottom) of the experimental studies that were conducted in field and laboratory settings.

specific procedures to teach verbal skills to individuals with language deficits (e.g., Greer, Yuan, & Gautreaux, 2005; Halvey & Rehfeldt, 2005; Yoon & Feliciano, 2007).

The majority of the studies that have appeared in the last decade of *TAVB* included

individuals with disabilities as participants. These results are consistent with recent reviews of verbal behavior research (Dixon, Small, & Rosales, 2007; Sautter & LeBlanc, 2006). The increased number of studies with individuals with disabilities seems to coin-

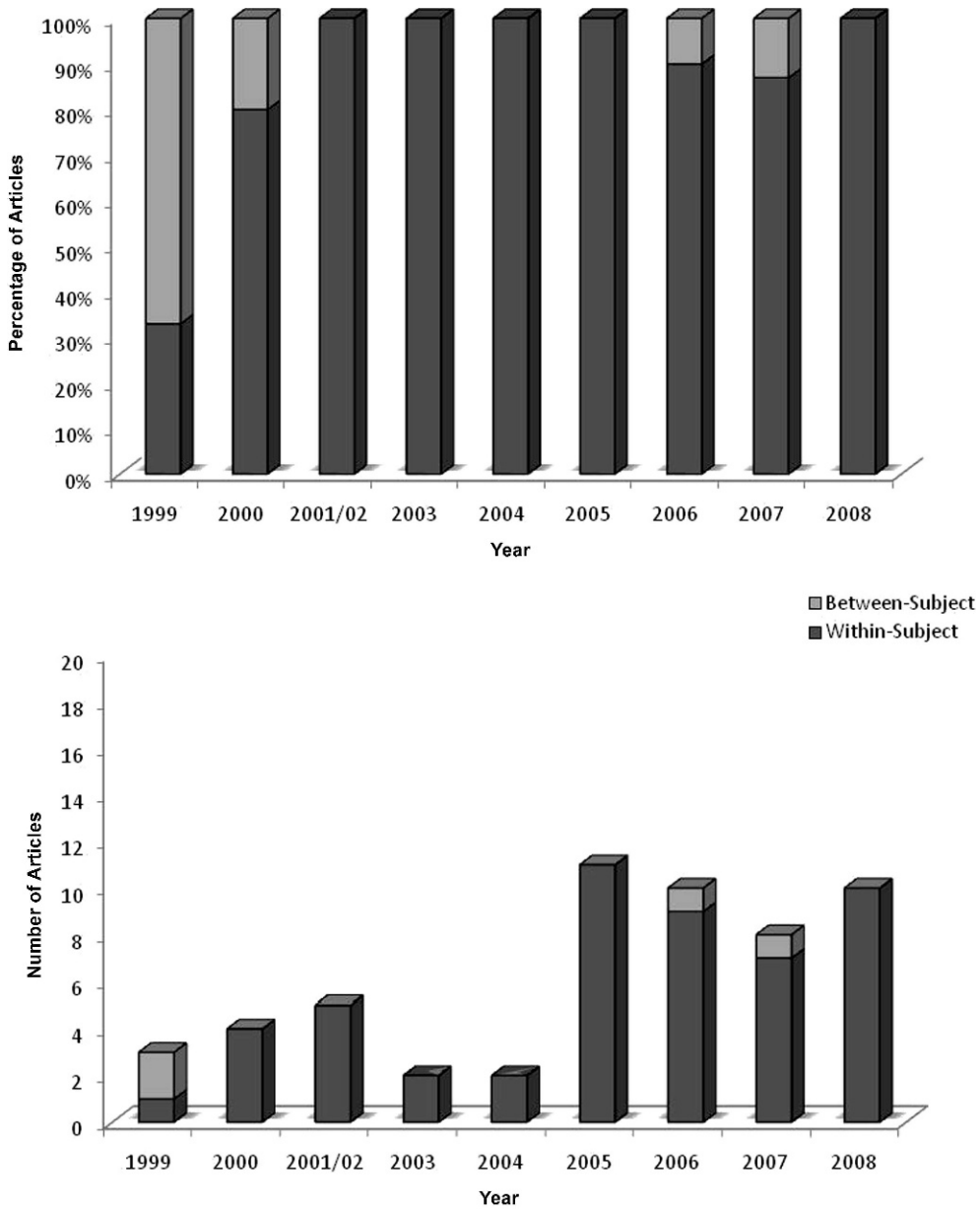


Figure 3. The percentage (top) and the number (bottom) of experimental articles that used either within-subject or between-subjects designs.

cide with the 1998 publication of a treatment manual for teaching verbal behavior language to children with autism (Sundberg & Partington, 1998). This publication served to disseminate Skinner's (1957) analysis of language among those who provide services to individuals with disabilities. Consequently, it seems that many of the studies

published in the last 10 years of *TAVB* were attempts to systematically answer questions of practical significance to those who develop communication curricula. These applied studies have an important function within our field because they may serve as a response to recent calls for additional empirical support for specific teaching methods derived from

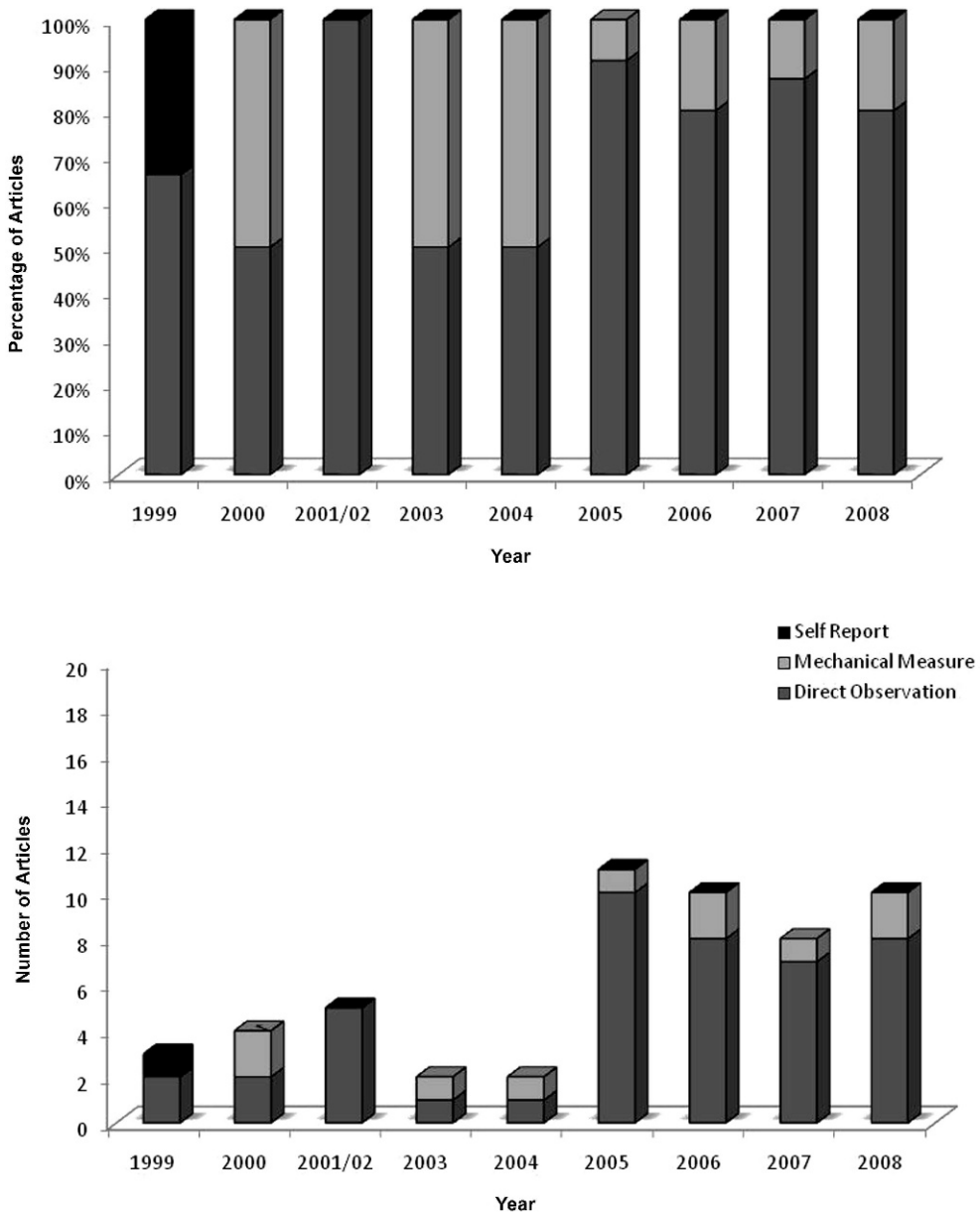


Figure 4. The percentage (top) and the number (bottom) of experimental articles that used either direct observation, mechanical measures, or self-reports.

Skinner's analysis of verbal behavior (Carr & Firth, 2005).

Normand et al. (2000) found that despite the growth of the journal, most articles published in *TAVB* were nonexperimental. The current study showed that in the last decade, 48% of the articles published in the journal were experimental (65% in the last 4

years). Thus, although *TAVB* continues to publish many theoretical and conceptual papers related to a behavioral analysis of language, the journal may be shifting from a primarily conceptual to a more empirical focus. An evaluation of articles that appear in future issues will reveal whether this is actually the case. It would also be interesting

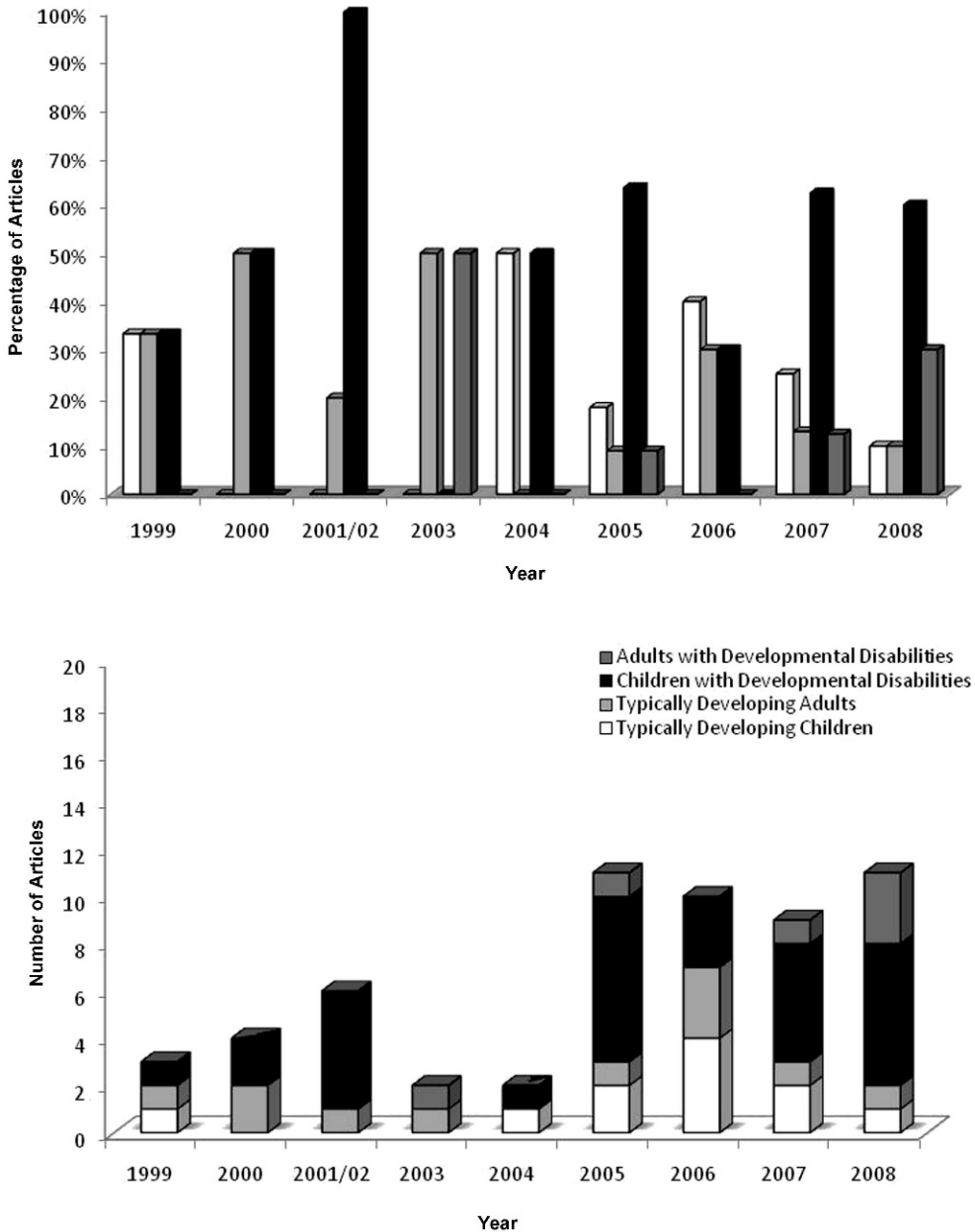


Figure 5. The percentage (top) and number (bottom) of experimental articles that reported participants' characteristics.

to monitor whether the number of field studies will surpass the number of laboratory studies, given the current focus on teaching verbal behavior to children with disabilities. Future reviews should not only continue to monitor *TAVB*'s publication trends but also to attempt to analyze the quality and impact

of its publications. Moreover, it would be interesting to describe systematic research programs that may have been derived from Skinner's (1957) analysis and their influence in the future development of a comprehensive behavioral approach to language acquisition.

As previously mentioned, *TAVB* is not the only possible outlet for empirical and conceptual research related to verbal behavior. Much has been published in other journals such as the *Journal of Applied Behavior Analysis*, *Journal of the Experimental Analysis of Behavior*, *The Behavior Analyst*, and *The Psychological Record* (Dixon et al., 2007; Dymond et al., 2006; Sautter & LeBlanc, 2006). The decision to submit a manuscript to *TAVB* may depend on a variety of reasons that are beyond the scope of this article (see Petursdottir, Peterson, & Peters, 2009), but if *TAVB* is to serve as the main vehicle through which Skinner's (1957) analysis is empirically supported, every effort should be made to enable the journal to become the publication of choice for those who study verbal behavior.

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